Partitioning the heart: mechanisms of cardiac septation and valve development.

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Public Summary:
This article reviews the molecular and genetic contributions of cardiac progenitor cells to the formation of cardiovacular tissues in the developing embryo.

Scientific Abstract:
Heart malformations are common congenital defects in humans. Many congenital heart defects involve anomalies in cardiac septation or valve development, and understanding the developmental mechanisms that underlie the formation of cardiac septal and valvular tissues thus has important implications for the diagnosis, prevention and treatment of congenital heart disease. The development of heart septa and valves involves multiple types of progenitor cells that arise either within or outside the heart. Here, we review the morphogenetic events and genetic networks that regulate spatiotemporal interactions between the cells that give rise to septal and valvular tissues and hence partition the heart.